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"Salvation of India lies in Cottages."

—*MAHATMA GANDHI*

CHALLENGE TO CONGRESS LEADERSHIP

THE passing of Nagpur resolution on 'Co-operative Farming' and the opposition voiced against it in the country has definitely thrown a challenge to the Congress leadership. Since Independence no measure adopted by the Congress has provoked such widespread and informed opposition as the present revolutionary move to introduce 'Co-operative Farming' on a country-wide scale with a view to give practical shape to the Congress creed of creating 'A Socialist Pattern of Society' in the country. The Prime Minister, Shri Nehru, who is mainly responsible for the passing of this resolution, seems to have made up his mind to face the consequences when he has expressed his determination in one of his recent speeches that *"he won't mind if the Congress goes to pieces on this issue"*.

Apprehending that a revolutionary step of this nature may create dissensions in the ranks of the Congressmen themselves and there may be public opposition of the move from inside the party ranks, it has been decided to take disciplinary action against those who dare to oppose it. The Congress President, Shrimati Indira Gandhi, in a recent meeting at Delhi is reported to have asked such Congressmen as differ from the new Agrarian policy to quit the Congress organisation. That obviously shows that the Congress leadership is not only in earnest to implement the Nagpur resolution but is also desperate about it.

In a recent Conference of P. C. C. chiefs in New Delhi, they have adopted a seven point programme, covering all developmental activities in rural areas, which is to be executed by 16000 Mandal Committees of the Congress all over the countryside. The Mandal Committees are also alerted to raise necessary funds to execute the programme and to get trained necessary cadre, to manage 'Co-operative Farms' and to conduct other activities in their areas. The Central and the State Governments are also embarking on a large-scale programme of training party cadre to implement the programme.

A period of three years is fixed to spread the net-work of 'Service Co-operatives' throughout the country on the success of which full-fledged programme of 'Co-operative Farming' would be introduced. The Prime Minister as also other top-ranking Congress leaders believe that through 'Co-operative Farming' food and agricultural production will increase by leaps and bounds and there will be a new era of economic prosperity in the countryside.

Baseless Assumptions

The resolution suffers from baseless assumptions and betrays ignorance of

Congress leadership about the actual state of affairs in the country as well as in the countryside. They fancy 'Co-operative Farming' to be a success in the country against the background of the most depressing climate created by selfishness and exploitation of the members of the ruling party, which has made the Congress unpopular in the country and particularly in rural areas. The members of the Mandal Committees who are presumed to be the pioneers to infuse co-operative spirit among the agricultural masses in the countryside are by and large active agents of exploitation who are being detested by the mass of people and who would hardly be trusted by our ever suspicious peasantry. And that they would be able to raise necessary funds to execute the programme in their area is nothing short of self-delusion and baseless presumption. They are the people, who are there to grab or to make improper use of public funds, if available, in their own interest.

To quote the opening sentence of the Nagpur resolution, which says, "*The organisation of the Village should be based on Village Panchayats and Village Co-operatives, both of which should have adequate powers and resources to discharge the functions allotted to them*".

One really wonders, if the Congress leaders have ever been in touch with the working of Village Panchayats and co-operative societies to form such an exaggerated idea about their efficiency and integrity. It is nothing short of self-delusion to presume that if adequate powers and resources are provided to them they would be competent enough to discharge the functions of all-round rural development and increased food and agricultural production immediately or in the near future. Had it been so, they would have done it already without waiting for the Nagpur resolution and the directives of the Congress leaders.

The Congress leaders should know that by and large these Village Panchayats and to an extent co-operative organisations in rural areas, wherever they are organised, are having moribund and lifeless existence. They are hot-beds of corruption, exploitation and intrigues and have been instrumental in creating factions, rivalries and inimical atmosphere in villages. They have been mainly used by the ruling party as electoral machines to support their candidates for various elections.

Congress politicians, particularly in rural areas, who are bent upon making hay while sunshines have with the lure of power and profit managed to get wrong and anti-social elements elected to these Village Panchayats. In our own area in Madhya Pradesh the President of a Mandal Panchayat is an active associate of a notorious decoit and the Vice-President is a suspect of the Police. In other areas also, so far as our knowledge and information goes, those elected to these Panchayats are not honourable and trustworthy people. And, we have no doubt, that if powers and resources are entrusted to the hands of these anti-social elements in Village Panchyats, they will be misused. That way lies destruction and ruin of the country and not construction as is assumed by the framers of the Nagpur resolution.

Rationalisation of Land

Unless 'Socialism' of the Congress also implies 'Totalitarianism' of Russian or Chinese Variety, this problem of rationalisation of land in the name of 'Co-operative Farming' is fraught with dangerous consequences to the country. The people know for certain that lands once given to common-pool can hardy be withdrawn from it when the policy of the Government is prejudicial to individual farming. Conditions such as they exist in this country 'Co-operative Farming' envisaged

by the Nagpur resolution will take away the lands of the people and put them in the hands of the Congressmen who are mostly office bearers of Village Panchayats and who, in course of time, would form the trained cadre to conduct these farms.

This managerial cadre drawn from the ruling party will ultimately be the real beneficiary of the present 'Co-operative Farming' move of the Congress at the cost of sacrifice of the lands of the poor peasantry in the country. A move fraught with grave implications to the future of the peasantry in this country would never be acceptable to them and would be resisted to the utmost. That may involve the country in large-scale bloodshed and revolution.

"CO-OPERATIVE FARMING—WAGE STRUCTURE"

By: **A. N. RAJAMANI**

Co-operative Farming implies a certain degree of rationalization. The presumption is that as a result of it, there will be a trend towards increasing and higher production. As it also involves the retention of services of only those who are decidedly of the most efficient order—the availability of it is made certain by reason of the existence of a vast and deep reservoir of rural surplus labour—there is a distinct possibility for increased wages to be given to the retained hands. The increased wage may, however, just be a little more than what was prevailing prior to its fixation or the minimum wage arrived at and fixed at after so much of field investigation. The actual disbursement of higher wage may also be interpreted as a logical consequence of the operation of economies of scale incident on large-scale farming.

However, the wage structure–its expansion or contraction in either direction–is subject to certain inherent and circumstantial limitations :—(1) Recording of actual increase in production, which strengthens the chance for increased participation by the labour in the growing profits; (2) Reduction in costs widens the scope for enhanced wages; (8) That the formation of the co-operative farming society either preceded or not by migration of the surplus labour to other areas, will define the level of wage; (4) Either increase in employment potential or not consequent on the formation of the co-operative farming society, will indicate the size of wage, for, more labour supply with less number of jobs may spell lower wages; and (5) Nature of crops raised, for, commercial crops may mean more revenue.

Wage is as a rule dependent on the natural market forces of demand by the rural sector for urban products and on the demand by the urban sector for rural products. As the major rural product relates to agricultural produce, and knowing the present day overall food deficit and increasing demand for agricultural raw materials it can be safely said that there is more scope in co-operative farming for an increasing degree of monetization. As such rural wage rise relatively to the push in urban wage can definitely be predicted.

When minimum wages are guaranteed, the tendency for the co-operative farming employers will be to engage only such hands which are proven in the field of efficiency. As such all the inefficients, the old and the infirm will be driven out of jobs and who in consequenee will be thrown into the urban sector or into the other industries in the rural sector. Of course, such wage revisions may have some sociological effects: (1) Very large number of hands are simultaneously thrown out: (2) It contains the appreciable element of indirect inducement to better their employability by making them undergo

special training or mend their mistakes; (3) It offers promotion for the cause of the development of small scale and cottage industries ; and (4) In the case of migration to urban areas or adjacent centres of economic activity, it gives rise to other social problems such as shortage of housing et cetera. The scope for increase in employment level within the farming society can only be in the long run. Indeed the magnitude of the sociological implications of wage revisions in co-operative farming societies is stupendous.

Again, the way wage is paid out to workers will have certain effects. Supposing it is paid in the form of money either fully or partially and the balance credited to the account of each worker, will have a definite influence on the liquidity conditions of the co-operative farming society on account of the volume of money involved in the transaction. Also, the wage structure will have to be determined in conjunction with the share in the total produce allotted to the owner-cultivators and absentee-owners (on the understanding that the element of ownership is made inviolate under any conditions). If supposing there exists any Fair Rent Act which divides the produce, say, in the ratio 60 : 40 between tenants and owners, in that case, the allowance made for the cost of cultivation between the two parties in any ratio fixed under the same Act is likely to have the lowest figure for wage in its composition. This may be because the landlord on account of his reduced income occasioned by the Act is no more interested in paying higher or minimum wages to labourers than the tenants on his lands owing to the letter's increased share which readily assures increased income and hence leaves no inducement to pay more wages and get the services of better workmen. As such both the parties will hem in wage structure which will shrink as a result of it. But the important point to note here is that this process of wage diminution will set in only in that type of co-operative farming society which is of the tenant type.

The process is likely to be different in other types of co-operative farming societies. In that in which it is centrally managed, the determination of the wage structure is done by the committee in charge of management. It fixes up the level of wage, say, minimum wage under the direction and provisions of the Minimum wages Act of 1948. In that case, the diminution of the total wage may be in the long run. Because minimum wage is assured, the tendency for the labourers will be only to put in minimum of work and under any tenancy act granting them fixity of tenure, they cannot be evicted (of course, there is an assumption here that the spirit of the motto : Service Before Self, the workers do not fully imbibe; neither do they realise that the right for minimum wage implies the duty of unstinted and unflagging service). As such the level of overall production will go down in the season following their appointment, and so in the next succeeding season, consequent on the diminished produce, there will be considered the desirability either to reduce the level of the wage or to employ less number of workmen.

In collective farming, of course, the problem of wage hardly arises because by force of power labourers must accept what all is given to them. Therefore, nothing exists there to be distinguished as wage structure. Even if the urban definition of wage, as it is inclusive of the three components of basic wage as payment for the service rendered, efficiency bonus and bonus distributed from out of the profits on the principle of co-partnership, is not imported into the wage structure in the farming society, even then, the absence of the right of ownership and determination of wage for themselves make it insignificant. The motivating force behind such a phenomenon in a collective farming society is naturally the overriding consideration for strengthening the industrial base of the economy as expedi-

tiously as possible. In co-operative farming society too this consideration is there, but, it is subject to the proposition that a certain and increasing portion of the rural marketable surplus over the consumption needs must be made over to the workers towards fulfilment of some degree of social amenities and comforts to be effected either through increased wage or through direct provisions for such amenities and comforts made therefor.

Whether wage, based on any principle, is paid in cash or grains has a telling effect from the point of view of the labourers. In this age of deficit public finance, the price level of grains, both food and commercial, is always subject to fluctuation. Hence, so long as the wage is paid in the form of grains in fixed quantity, the labourers' real wages are secured. But if the price goes up too much, the co-operative farming society stands to lose a very big amount which, of course, will be not so much in individual cases, for whom the loss, the total loss, will be small or by mutual adjustment the loss can be certainly minimised, which will be none at all if the individual acreage is below a particular level, for, such one will be generally granted exemption from the operation of any law relating to minimum wages. Even if the individual acreage is subject to the Act, because one is dependent upon the other, because employment opportunities are limited-which increase in co-operative farming-the labourers will volunteer themselves or be only too glad to accept wages in cash in time of rising prices; of course, when price moves down there would not be any grudge for wages assume to the shape of grains.

Co-operative farms are by nature very big units of cultivation. They will find it in their terms to uphold minimum wages only for sometime; for, the minimum should always be a variable one. When once industrialization begins to advance rapidly, the labourfolk will migrate in large numbers to other industries. At that point of time, the wage level will have to be pulled up to retain the minimum labour on land. Minimum labour with maximum wage-wage to include social amenities too if they are measurable-will have to be the guiding rule for recruitment of labour. Of course, mechanization is an alternative. The minimum will, however, be pulled down when depression sets in. In other words, the enormity of the wage amount in absolute sense makes it incumbent on the managements of the co-operative farming societies to undertake the task of wage revision, as otherwise, it will be difficult to maintain a given level eternally.

In fact, a careful analysis of the labour activities in a farming society will throw much light whether there is a case for the maintenance of minimum wage or not for all time to come. In private farms, the likelihood of labour organising itself is remote, unless there is a general attempt by influential political parties to make out a case for their joint endeavour in getting their grievances redressed. But in a co-operative farming society, it is ipso facto true to say that labour is organised, and so it becomes a powerful body to negotiate with the management problems relating to wage. Therefore, wage can easily be fixed at a level which affords the maximum satisfaction to the labour group and which offers the least difficulty to the society as a whole. From this point of view, it can be concluded, that the need for the operation of any minimum wage law in respect of co-operative farming societies is nil. At the same time, it is also true to say, that when a co-operative farming society is installed for inauguration, the labour may not be expected to be as much organised in the

initial stages as it is in a full-fledged society. For labour to have organised itself well even in the opening stage of the society is to presuppose the existence of organised labour in general in all parts, that is, in all farms. Therefore, it will be the duty of the government to offer protection to the labourers in the initial stages, say, through enacting a minimum wage legislation. Therefore, the case for such legislation to be in force in a co-operative farming society in its early days of working cannot be contested seriously.

The possibility for wage differential exists in so far as there are jobs available in agriculture, small scale and cottage industries and other fields in the rural sector. The differential could even operate among the so many stages of the cultivation operation. But it may be kept at the minimal point or at least be kept at less than what was before the formation of the co-operative society because the labour has an opportunity to voice its requirements now and get them done.

Could there be any differential wage structure prevailing in co-operative farm and other private farms? So long as any minimum wage legislation is in force and which is adopted in co-operative farms also unless otherwise provided for in the Act, there could not be any difference. However, in the absence of any mandatory Act to that effect operating in both areas, there is bound to be some difference. But the upward point of the difference will always be in favour of co-operative farms by reason of the fact that it has more fund raising capacity and capacity for credit. In such a case of difference, the tendency for labour will be its flight to co--operative farms especially because the employment potential of the co-operative farm has increased since its coming into being and that industrialization of the country has not advanced much to absorb the rural surplus labour.

Just as there could exist difference between co-operative and non-cooperative farms, so also there is the possibility for wage difference to come up between different types of co-operative farms. If it is a co-operative servicing unit, the wage may be less than in other types of societies because the members thereof may have taken servicing as subsidiary to their primary avocation of cultivation of their own lands, or it may actually be higher due to their rendering expert, efficient service. At any rate, there could not but be some degree of difference between the different types is made clear.

The problem of wage would become serious if mechanization were adopted by a co-operative farming society. The reason is more people will be thrown out and hence, the level of employment of human labour will be pulled down, and as such, the thrown-outs will be prepared to work at less wage than before in those jobs for which after mechanization, their services are required and may be offered. If mechanization is resorted to, however, in both co-operative and private farms, there would again be the same difference in wage in actual practice although legally the labourers ought to get the minimum wage in both areas if one such act were in force. The reason is obvious. Surplus labour is willing to stoop to any depth at the small points of wage structure to stay in life. At any rate, the high point in the lower wage will obtain in the mechanized co-operative farms and the low point will prevail in the non-mechanized private farms.

If wage increase, bowever, takes place in a co-operative farm composed only of landlords, there will be a tendency for capital formation to shrink or in the alternative if the increase is very much

so as to make employment of human labour uneconomical, the landlords will be driven by consideration of economy to take to labour-throwing mechanical contrivances or appliances. The rigour of both can be minimized if co-operative farming societies contain some tenants or labourers also among their members and if the government offers suitable incentives which will counteract the inclination for capital formation to shrink.

The wage situation will be difficult in certain societies. In the case of co-operative farming societies formed of the Gramdan villages, it should be noticed, that ordinary agrarian legislations applicable to the rest of the areas will not apply to them. As such all relations between the management of the co-operative farming society and its tenantry will be decided by the former for the society as a whole. After all, the management is just composed of the representatives of the tenantry. And in their exuberance they may fix very high wages, that too equally high wages for all types of works in cultivation operations including the pre-and post-operative stages.

Although these very high self-awarded wages are good signs of a healthy and vigorous co-operative farming society in the making, the knowledge of such high level of wages is bound to create angular minds in the other co-tive and non-cooperative farms. It will thereafter become the bounden duty of the Government to checkmate any mischievous elements prone to take advantage of the difference in wages or political parties making capital out of the situation.

At any rate, in no type of co-operative farming society the wage can go on increasing because after a time the return on the last unit of increase will fail to bring in suitable additional production. The probability for such level of wage to be reached sooner in co-operative farms than in others is definitely greater because the society can command all services to the end of attaining the maximum production within the pre-ordained seasonal duration. As such, as between a co-operative farming society and a private farm the degree of exploitation of land will decide the extent of difference in the rate of increase and the amount of wage structure.

But what of the ratio of total wage to total production in co-operative and non-co-operative farming areas ? Unless as already envisaged, there were minimum wage laws in both areas, the ratio may tend to be smaller in co-operative farms than what it is in the non-co-operative farms on account of the fact that the capacity for credit and credit-worthiness are greater in the former than in the latter areas and as such the total wage would tend to be higher. But it is also possible that the ratio in the co-operative farms may not appreciably change over a period because although wages may increase there will also be simultaneous increase in overall production. The increase on both accounts may be co-existent and of a definitely related magnitude. As such the ratio may tend to be constant. But after a time any additional wage increase may see the ratio climb down as production capacity is not unlimited or elastic under all conditions.

The natural display of the laws of the demand for and the supply of labour cannot be allowed to function as such by the Government as it has been done so long. The abundant supply of labour acts against its own interest. It is indeed an accident and a deplorable accident in Nature that such rural surplus labour should throttle its own wage in an undeveloped

of under-developed country, whereas it shapes up its own wage in a highly industrialised country. As such the wage policy in economic growth becomes a fundamental issue to any planner in any country according to that country's growth or capacity for gowth. And the gravity of the wage problem becomes serious in a co-operative farming society on account of the magnitude af labour group involved in it.

In the absence of wage laws, wage structure will also be considerably influenced by the degree of urbanisation to which the labourers and their areas are subject. The nature and extent of their necessities in life, of their craving for luxuries or minimum of social amenities and the size of their families may have to be points for consideration before effecting any finalisation on the issue of fixation of minimum wage. Actually, as noted before, the large number of labour employed in a co-operative farming society, make it vulnerable to giving large amounts of money by way of any small increase in wage level, if such increase were called for on account of the village, in which the society is, falling within the range of the influence of the nearest urban tract. In other words, the distance at which a co-operative farming society stands from the nearest town may have a definite say in the size of the wage structure.

Wage can also differ as between various co-operative farming societies according to the type and number of crops they raise. Cash crops will always procure greater profits than food crops to the co-operative farming society. Even in this if food crop is raised, say, twice a year, then, the cumulative profit gathered from both the crops may be more than sufficient to deal out such wages as would equal to that on the co-operative farm with cash crop. Hence, more often than not, wage structure is also a function of the type of crop raised.

The interplay of the so many factors considered so far suggests the inadvisability of any rigid policy for wage structure in co-operative farms. It will have to necessarily differ according to the individual conditions of the different types of co-operative farms. It will be better, if the government, instead of fixing only the minimum wage, fixes the extreme limits of wage structure, thus enabling the natural forces to adjust themselves and determine the size of wage within the defined limits. Or in the alternative the Government can stop after enunciating the besic principles underlying wage fixation so that the various co-operative farming societies can adopt the principles and work out the amount of wage structure according to their capacity and exigency.

DECENTRALISATION AND DEMOCRATISATION

By : Prof. K. BAHADUR

THE two terms 'Decentralisation' and 'Democratisation' are often heard today from all corners of the world for the healthy growth of freedom of individual. Growth of freedom and enjoyment of freedom can only be possible within the framework of a social organisation, run by the mechanic wheel of democratisation in which freedom should be rendered secure by the removal of all social obstacles. The extent of enjoyment of freedom by the individual solely depends on the extent to which the power has actually been diffused. Democratisation, therefore, means building up a harmonious social order conducive to the growth of the freedom of the individual.

The basic functions of the State are the avoidance of the possibilities of social strife and disorders and the creation as well as maintenance of harmony in inter-personal relationship. In such an environment alone creative and constructive talent can be developed to adequately discharge the responsibilities of national development.

Democracy through the process of decentralisation brings diffusion of power which eliminates the difference between the ruler and the ruled. This brings a transformation - a change of heart - an awakening of the higher self and an assertion of the nobler self. Thus a new noble society is created, in which human freedom is not sacrificed in the scramble for power.

Village Republics

True and efficient democratisation consists in popular participation in policy making as also in policy execution. This can be possible only when the foundations for the development programmes begin from the village Panchayats, the village Co-operatives, Village Schools i. e. from the bottom, to which full responsibility for planning and implementing the programmes is transferred. Shri Shriman Narayan, Member of the Planning Commission, is also of opinion that, " in the political sphere peaceful and non-violent revolution meant widest decentralisation of administration in the form of net-work of Village Republics or Panchayats where 'composite' democracy would work directly for the welfare of the people". That is why our Constitution declares that "the State shall take steps to organise Village Panchayats and endow them with such powers and authority as may be necessary to enable them to function as units of self-Government."

Stateless Society

Centralised type of Government, as it becomes mechanical and inert and obedience in it is rarely creative is unsuited to democracy. Democracy is always hostile to the centralisation of political power. But it should be noted in this context that the Village Panchayats must not be completely isolated from one another but there should be a well co-ordinated system of rural republics with maximum powers for the village units, which would furnish a strong and sound base to the structure of democracy, providing a cementing force to our civilisation. These small units create a powerful agency to speed up development work playing a conscious role and establishing a broad-based egalitarian society. They constitute the process of decentralisation of political powers-a step towards "Stateless Society"—in which democracy finds its final consummation.

Thus for the proper execution of our Constitutional aspects we shall have to explore the possibilities of political practice without the interference of political parties. "Because it is through the instrumentality of political parties", says a great political thinker, the late M. N. Roy, "that power is concentrated in the hands of minorities, to be abused and misused on false pretences." The power thus centralised starts a race for power and profit and pushes to the front a class of people, who exploit and thrive in an atmosphere of ignorance and demoralisation. It entails the spirit of competition, exploitation, colonisation and imperialism and all the more it brings in its train bitterness and conflict and ultimately destruction of humanity by wars and dependence.

All these produce too much difficulties and complexities, which can best be removed by the application of decentralisation of economic and political power in the form of self-sufficient and self-growing village communities, by which, Mahatma Gandhi stressed, human happiness combined with full mental and moral growth. "Political power", Gandhiji emphasised, "is not an end but one of the means of enabling people to better their condition in every department of life. It means capacity to regulate national life through national representation". It is obvious that the desired decentralisation of power is conditional upon the disappearance of the instrument of centralisation so that the sovereignity of the people should always remain with the people.

Decentralisation of political power and economic organisation are not two things in the real sense of the term. For, real and practical democratisation from within is the true basis, which cannot be evolved by forcible methods and cannot be imposed from without. It depends upon voluntary moral inspiration and self-sacrifice for the larger interests of the community.

Production And Distribution

So far as the decentralisation of economic activities is concerned it requires a pluralistic, rural-centred society. True freedom implies self-help, self-sufficiency, social responsibility, Co-operation and spiritual purpose of life over mere materialistic motivation, disruptive competition and class conflict. Too much State control resulting in concentration of power and danger of violence should always be avoided so that production and distribution may be as decentralised and village-centred as possible tending to be for use rather than for profit and approaching the ideal of village self-sufficiency in the matter of basic needs.

Distribution would be local and simultaneously with production both would be based on co-operation and not on competition. Labour would be organised on the basis of non-violence and self-help and as a rule there would be compulsory arbitration of disputes. Thus the village centred industries would eliminate the chances of exploitation and allow the individual or a co-operative group to retain business initiative and freedom of enterprise.

In this way agriculture will go hand in hand with industry and work will be a means of realising the full content of life. In another way the idea of 'mass production' would be replaced by 'production by masses'. However, it is rather essential that to make necessary decisions and direct the national economy centralisation and State control would be exercised. This cannot be prevented, even if attempted, because its prevention would require a complex and centralised management of the economy. Moreover, the organisation and improvement of in-

numerable decentralised small industries and village life in general would involve an extensive bureaucratic development.

As such in most of the cases basic and key industries must be started on the large scale but most of the consumers' goods industries must be decentralised on the widest scale in the form of industrial co-operatives with a view to providing fuller employment, increasing production and securing greater social and economic justice. The existence of basic and key industries on large and centralised scale would subserve the village economy and not dominate it.

Economic Planning

Thus the real economic planning, for which all the countries of the world are trying today, to harmonise the interest of both the individual as well as of the society, could be possible only in a system of democracy. It is not possible for New Delhi to plan for the numerous villages throughout the country. Our Prime Minister, Shri Nehru, has also emphasised that, "effective planning could not be done by a Government or Government agency by itself. If it was to be an effective and widespread plan, it had to associate others—the people—right down to the villages". This is not a matter of ideology or abstract thinking. Particularly in an under-developed country like India with large population and area, it is impossible for a centralised administration or planning body to plan for its all-round development in accordance with its local requirements.

That is why we have tried to go to the root of the problem to pursue a bold policy of democratic planning-a planning of the people, by the people and for the people-which means "to create a milieu in which the small man, who had so far no opportunity of perceiving and participating in the immense possibilities of growth through organised effort, is enabled to put in his best in the interests of a higher standard of life for himself and increased prosperity for the country."

It is, of course, one of the greatest challenges of modern times. It is a novel model in which social, economic, administrative and judicial functions of the State are diffused and transferred to the Village Community Councils, where both the "standard of living" and "standard of life" are raised in an integrated manner. Development schemes are based on the needs and demands of the people in the villages rather than on priori doctrines and rigid theories. These schems are being worked out with co-operation and understanding and not with coercion and dictation. A Chinese proverb is best suited to our democratic planning-" If you are planning for one year, plant grains ; if you are planning for ten years, plant trees ; if you are planning for a hundred years, plant men ".

Thus we want to keep the urges of the people-the essence of true democracy by providing ample opportunities to them for discharging their responsibilities and to develop proper initiative and resourcefulness and a sense of civic duty among them. Hence democratisation, as recognised, is the finest social instrument for harnessing the creative urges and immanent talent of the people. It also supplies a training ground for first-class men of sterling character, high integrety and sublime morality. We have accepted this as our political and economic philosophy primarily for the consideration that it is in conformity with the genius of our people and Indian temperament.

Conclusion

But in modern times, as conditions exist in several countries of the West, democracy is suffering from several evils that flow from excessive centralisation

of political and economic power, resulting in the curtailment of individual liberties to a considerable extent. In the Soviet Union and the Republic of China the economy is directed from the Centre, which sets State Production Targets and makes decisions on all matters concerning distribution, capital construction, finances, labour etc., leaving no scope for individual initiative politically or economically. Even in European countries where democracy functions, it has begun to show certain tendencies towards centralisation, which might imperceptibly lean towards authoritarianism, if not cheked in time.

Thus a bold policy of decentralisation is essential to pursue and to save democracy from the perils of too much concentration of power in the hands of the State. Then alone the foundation of 'Sarvodaya' could be laid on an universal scale. This does not mean that we decry 'State Control' and 'State Initiative.'

They are essential to an extent, and are required, because without control there may be a drift towards anarchy and without State Initiative there may be stagnation.

BEWARE--THIRD PLAN

By : S. SITARAM

EVEN before the Second Plan has been carried through successfully, suggestions have started pouring in about the Third Plan. Ideas about the size and nature of the Third Plan have been appearing in the newspapers on a speculative basis. It is rather unfortunate that the Second Plan is yet to turn around the corner–a tight one indeed-despite the drastic steps taken on both import and export front. Though considerable foreign exchange has been saved, thanks to the policy of making imports at the absolute minimum, more foreign exchange has not been earned. This is due to the fact that our exports have not hit newer and wider markets. The exports consist of traditional items only like jute, tea and textiles. Any change in the world market for these goods, vitally affects our export earnings, because of the narrow field our exports have been permitted to gain ground. But now even this limited field has to be protected and strengthened because of severe competition from other Asian countries like Japan, China and Ceylon.

The Second Plan witnessed a heart-rending scene. It was about to collapse because of acute bankruptcy of foreign exchange which alone could procure our Steel Plants. The crisis in the situation forced the present Finance Minister and his predecessors to go on a pilgrimage to U. S. A. with a begging bowl. Official terminology for such visits is given as:—"to negotiate with U. S. A. industrialists about the prospects of aiding India's Plan." Call it by whatever name, the truth was, India was desperate about getting assistance from U. S. A. For this, they had to make some compromise in their foreign policy. Otherwise, how could one explain the reason for decrying the Communist Party in India and elsewhere by the Finance Ministers before they emplaned for Washington. Obviously, they wanted to placate Uncle Sam.

If our Planning Commission had some foresight they could have very well avoided the demoralising situation. For the Third Plan atleast they can make wise calculations and then draft the Plan.

If they are sensible (and there is no doubt about it) they will profit from the previous experiences and mistakes and accordingly change their dogmas. But the Planning Commission is not to be entirely blamed. Lack of accurate statistics and data about different aspects of the Indian economy had contributed to the miscalculations in the Second Plan.

The Third Plan must once again concentrate on agriculture; there is no prestige involved in that. The fundamental basis is food and so the nation must be self-sufficient in food. Then only other things come in the order of importance. When we neglect the food front and emphasise on those things which could afford to wait, we are exactly putting the cart before the horse. Nay, I would go one step further and say, we are forgetting to put the horse at all anywhere near the cart. It is said, one steel plant costs the value of 10 fertiliser plants. If that be so, more and more fertiliser plants should be installed during the next plan period. The Sindri fertiliser plant is a great success in terms of orders received for the supply of fertilisers from the farmers. In fact the supply falls short of the demand for fertilisers. When agricultural production is raised substantially (and that exactly is the crying need of the hour) benefits accrue in two ways: (1) import of food grains can be stopped therby saving considerable foreign exchange (2) inflation in the country can be kept under control. This aspect of the food problem has been repeatedly pointed out by some of our Economists but as far as our Planners are concerned it is a cry in the wilderness.

Second Five-Year Plan has not mitigated the chronic unemployment problem which is ravaging the country. Every year, thousands of University students step out of the portals of their colleges eagerly, but only to be disappointed with 'No Vacancy' sign—boards. The annual addition to the labour force is 2 millions and that also meets the same fate. To remedy this evil, the Third Plan should envisage setting up numerous small-scale industries. Small-scale industries being highly labour-intensive offer more employment. The advantages of such industries are worth recording. From the view-point of management, they are more advantageous and there is scope for greater personal supervision. They can minimise labour disputes and foster good and ideal labour-management relations. They cut down cost of production through economy in over-heads. Technological economies also accrue, as they insulate large industries from the burden of over-equipment,

When dealing with Land Reforms the Planning authorities should be more cautious and not exhibit any signs of haste and rashness. Land is very much adored by its owners and any attempt to meddle with the traditional practice will invite a spate of criticism and bitter opposition. All this talk of ceiling of holdings will only harm the interests of agriculture. When there is threat of compulsory acquisition of land by the Government, the land-owners will naturally be discouraged with the result that agricultural production will diminish. This is not the time to make experiments, nor land reforms should be made the vehicle for securing votes in the Elections. It is important to note that political stunts and economic development do not go hand-in-hand.

The Third Plan must aim at bringing the price-level within the easy reach of the middle-class people. These people always bear the brunt of attack by inflation. Having fixed income, their real

income is reduced when the prices of necessities shoot up like a Sputnik. If the Third Plan does not aim to do this, there is no use in going on wasting huge sums of hard-earned public money on plans which are after all beneficial only to the rich people. Plan for the poor is our plea.

MEASURES TO TACKLE FOOD GRAINS SCARCITY IN INDIA

By : Dr. S. L. GUPTA

Introductory

There is nothing like originality in ideas. It is all a matter of looking at one and the same thing from diverse points of view and arriving at certain conclusions. I do not claim much of originality in submitting this paper. However, what I do claim is that inspite of the topic chosen by me, being an oft-beaten one, I have arrived at some conclusions which may be regarded as :—

(1) an impartial analysis of Governmental policies for price control of food grains and their greater production including schemes for family planning; (ii) a challenge to the operation of the Law of Diminishing Returns and (iii) to the changing order of human values in Indian society.

Prospective of food scarcity

It is estimated that about 30 percent of the Indian population is normally undernourished and even when the diet is quantitatively adequate it is almost invariably ill-balanced and painfully short of essential protective food. (2) As compared to many other countries the rate of cereal consumption in the country is relatively high. This is because that protective and energy producing foods such as milk and milk products, fruits and vegetables, eggs, fish and meat are far from being adequately represented in the common diet." Apart from the question of correct food habits which is undoubtedly a matter of extreme importance the output of each of these supplementary food is at present grossly insufficient".[3] The per adult avaliability of food in the country amounts to 2,200 calories as against an estimated 3,000 calories that is required by minimum nutritional standard. Even this average is misleading because there are larger sections of the population who hardly get 1,200 to 1,500 calories per adult per diem.[4]

During the Second Plan period the total demand for food grains is likely to increase; the increase in the consumer demand for food grains would be by about 10 p. c. on account of an estimated increase in the total population[5], and about 4.5 to 5 p. c. in the per capita consumption of food grains on account of expected increase in the per capita total consumer expenditure[6]. Thus the combined resultant increase in the requirement would be about 15 p. c. The

(1) Famine Enquiry (Woodhead) Commission Final Report (1945) pp. 106-107.

(2) S. M. Ray—Food Consumption in India.

(3) Second Five-Year Plan pp. 260.

(4) Food Grains Enquiry Committee Report (1957) p. 40.

(5) Food Grains Enquiry Committee Report—Page. 58.

(6) Ibid P. 61.

Statistical Department of U. N. Food and Agricultural Organisation has unequivocally declared that "India is the hungriest country of the world". "In many countries, especially in the East the food supply has not yet caught the pre-war standard and malnutrition is rampant". Prof: N. R. Dhar, while inaugurating the Agronomy Society of The Allahabad Agricultural Institute, stated that "the greatest danger to the majority of the world population was not the atomic weapons, hydrogen bombs or atomic radiation but acute shortage of food and malnutrition."

The problem of scarcity and the rise in prices has been a great menace both to the Government and to the public at large. On the one hand the Government has to incur heavy financial burden by way of imports of food grains and distributing them on a subsidised basis in the country, as well as by incurring additional expenditure in plan layout and on the other hand the public has to encounter a number of difficulties in balancing their budget. The rising trend of food prices is not confined to India alone. But according to F. A. O. report in most countries food prices kept on increasing and caused an upward movement in the cost of living. [7]

Governmental Measures

The soring rise in prices of food-grains has been a cause of great concern in every quarter of the society and the government undertook series of measures to check the rising trend of food prices, but have not been quite successful in their efforts. The regulatory measures which have been taken in recent years, such as the creation of food zones and cordons, distribution of food grains through fair price shops, licencing of food grain dealers, internal procurement and provision of large imports of food grains, regulation of credit etc, have all failed to tackle effectively the problem of rising prices.

(7) The Eastern Economist, Oct. 1958, P. 152.

The problem of rising prices was examined by the National Development Council in the first week of November, 1958, and the Council recommended the system of State-trading in food grains. From all account the Government seems to be determined on introducing a system of State-trading. It is a desperate measure which is also likely to meet with the same fate as the earlier ones.

Under the circumstances it is highly essential to suggest the short-term as well as the long-term measures, which may go a long way to solve the immediate problem of distribution of food grains at a reasonable price and the scarcity of food grains. Therefore, what I propose to discuss now is the two probable solutions i. e. directional control of food grain prices as an immediate solution and measures in stepping up the food grains production as a long-term solution.

Directional Control of Food prices and Fair Distribution of Food Grains

If we think for a moment about the implications of State-trading, we will come to the conclusion that the system will be of little avail to solve our problem of rising prices. The fixation of the prices of food grains, arbitrarily or on the basis of *ad hoc* survey, the creation of an elaborate administrative machinary, opposition of the agriculturists are some of the difficulties which will have to be faced. Under the circumstances prevailing in India, the only solution is to have directional control of food prices. What I mean to suggest is that the Government should act as a regulatory authority in the way as The Reserve Bank of India acts in controlling the money market by its open market operations.

For this purpose the most important work which the Government will have to

do is to undertake buffer stock operations. That is, it will have to start purchasing at a reasonable price, food grains whenever prices tend to fall and it will have to sell at a reasonable price, when prices tend to rise. In order to discharge these operations successfully, it will have to keep stocks of food grains and will have to fix the range of the selling and purchasing prices and a ceiling should be fixed beyond which nobody should be permitted to stock food grains. In this way the Government machinary will organise the stabilisation of prices, which will be of immense benefit for the public and convenient to the Government.

The Ministry of Food and Agriculture made certain proposals in 1954 for setting up of a buffer stock administration with a view to stabilising agricultural prices and incomes and maintaining an integrated structure of prices. It was argued that the provision of buffer stocks for important agricultural commodities supported by appropriate export, import, fiscal and monetary policy was the more desirable way of achieving the above objective, than direct physical control over prices through procurement, rationing and movement controls......The buffer stock administration was intended to function largely as a counter speculator in the commodity market more or less on the same lines as the open market operations of exchange equalisation funds of foreign exchange. [8]

Stepping Up of Food Grain Production

Directional control of food prices and progressive and planned socialisation of wholesale trade in food may be an appropriate measure to meet the immediate scarcity of food grains in the country, but the scheme cannot afford a permanent solution to the problem. The real solution, in the long-term lies only in the stepping up of food grains production in the country.

Considering that the pressure on land is heavy [9] and increasing [10] and the nutritional level is much below the minimum standard, and the longevity of life increasing, food problem is a problem of expanding agricultural production so as to assure to an increasing population progressively rising levels of nutrition.

The steady decline in the cultivated area per capita further emphasises the urgency of expanding production from existing area by improving the yield. The cultivated land per head had declined by nearly one quarter, from 1.04 acres in 1931 to 0.94 acres in 1951.

Optimistic Outlook

(i) There is ample scope for increasing crop yields in India. The average yield of rice in India is said to be of the order of about 750 lbs per acre as compared with 3444 lbs in Japan ; 2,998 lbs in Egypt, 2,433 lbs in China and 2185 lbs in U. S. A. The average figure for wheat is also about 700 lbs and is the lowest in the world. It is 1918 lbs in Egypt, 1713 lbs in Japan, and 898 lbs in China. (ii) And what is more, whilst in many other countries of the world, average yields have recently gone up, in India (despite the extension of irrigation) the figures have remained more or less stationary since the days of Buddhism. [13] To quote Rangnekar. D. K." India has perhaps scarcely been able to maintain prewar productivity. Some other countries seem to have achieved an appreciable

(8) Food Grains Enquiry Committee Report 1957) p. 31.

(9) as 440 Sq. miles of arable land

(10) Population is increasing at the rate of over $4\frac{1}{2}$ millions every year, the additional demand for food grains on account of this increase has been estimated at about 4,50,000 tons

(11) Census of India. 1951 Vol. i, part 1aA P. 141

(12) Hindustan year Book P. 235.

(13) Rangnekar. D. K, ' Poverty and Capital Development In India ', P. 6.

improvement in both crop yields and productivity.[14]

(iii) Even assuming that the published statistics under-estimated the yield to the extent of 20%, there is still a considerable margin. In India the yields of crops raised by the average cultivator are much less than those on Government farms and well managed estates. In the case of wheat for instance, yields could be atleast quadrupled in many areas if water and manures were adequate. In the irrigated areas of Punjab the average yield was less than 1000 lbs per acre. And even if this were marked up by 20% it is lower than the average of 1,600 lbs to 1,800 lbs raised on well managed estates.[15]

(iv) Increased mixed cropping (sowing more than one crop) and increased double cropping (sowing the same area more than once) probably made a considerable contribution to the aggregate output. On the basis of comparable data, the census Commissioners report 1951, stated that the double cropped area in 1951 was nearly 13% of the total cultivated area. i. e. atleast 1% above the average over the preceding 30 years. Thus there is great scope for increasing the double-cropped area for increasing food production.

(v) Agriculture is generally carried on under conditions of diminishing returns, so that other things being equal, the output per head tends to diminish as density of settlement of farm workers increase. But to counteract the working of this law Colin Clark emphasises that "the tremendous development in agricultural science and technology in advanced countries has shown that the effects of population pressure can be overcome. This is a phenomenon which the law of diminishing returns cannot explain. The point from where the diminishing returns begin can be postponed indefinitely with the help of science. One can argue that India is not a developed country and it has not made much strides in the technology of agriculture, the law must have its application. In this connection it can be suggested that from the calculation of the level of output per head of agricultural population between 1934 and 1951, it would seem that in general the yield per worker has perhaps not diminished.[16] "It must, however, be noted that owing to wide diversity of agricultural conditions in the country and the ambiguity of the role of family helpers or dependents, it is difficult to guage the precise changes in the density of settlement of farm workers. Accuracy in the present conditions is perhaps impossible. But the population census of 1951 drew attention to the increase in the number of cultivators, labourers and family helpers working on the same area of cultivated land.[17] "Whatever improvements in production have taken place in the year and most of it is due to irrigation, mixed cropping and double cropping has probably just managed to hold back diminishing returns. If the standards of husbandry were really efficient and progressive and the farmers were really knowledgeable, even low fertility lands could have been worked profitably as is done in other countries. It can be concluded that if the operation of the law of diminishing returns cannot be held in check indefinitely, it could atleast be postponed for some period.

(vi) There is considerable scope for land reclamation in some areas. To quote Food Grains Enquiry Committee

(14) Ibid. p. p. 43.

(15) Kharegbat Memorandum. p. p. 18-19.

(16) Rangnekar. D. K. 'Poverty And Capital Development In India' p. 45.

(17) Census of India, 1951. Vol i part I. B. Appendix A.

Report, 1957, it seems that in Rajasthan a substantial increase in food production can be brought about through conservation of rain water by permitting it to percolate in soil by bunding with sand. This method has large potentialities. The results achieved during the first Five-Year Plan were also due to the work of reclamation being carried on vigorously.

Measures for stepping up food production

Eversince food scarcity in the country started, the Government have tried to increase food production but earlier attempts were confined to enacting legislation and taking executive action to transfer land from cash crops to food crops.

The British Government in the year 1943 appointed a Food Grains Policy Committee. As a result of its recommendations, the Grow More Food Campaign was launched. This campaign during the period 1943–'48 virtually failed. It resulted in the reduction in production of cotton, jute etc. without a corresponding gain in food grains. The failure of the campaign might be accounted for the launching of the scheme haphazardly, without a target of production and also because of peacemeal and unco-ordinated efforts.

Another Food Grain Policy Committee was appointed in 1947. According to it a second "Grow More-Food Campaign" was launched. This time the efforts were planned and included intensive rather than extensive methods of raising production. A target of 72 lakh tons of additional production was laid down, but the achievements fell far (14 lakh tons) from the targets fixed.

In the First Five-Year Plan the Government was more alive to the problem of food scarcity and paid top-most priority to agriculture and irrigation works. The target of additional production of food grains was put at 7.6 million tons by the end of the plan. The most important programme for agricultural development involved the starting of Community Development Programmes and National Extension Service Blocks; major as well as minor irrigation works, land reforms, reclamation of new land and the introduction of the Japanese method of rice cultivation. Arrangement for improved seeds distribution, consolidation of holdings and introduction of co-operative farming were also made.

In the third year of First Plan production increased by 9.5 million tons, as against targetted production of 7.6 m. tons. The increased production was partly due to favourable weather conditions and partly due to the developmental measures taken by the Government. This enabled the government to cut food imports and scrap the control of food grains.

The quantitative aspect of food grain supply was attained during the first Five-Year Plan period, but the qualitative i. e. the nutritional standard remained to be fulfilled. This leeway was to be made good during the Second Five-Year Plan period.

Although series of measures have been taken by the government, yet the effects of all these on food production have not been uniform. Some of them have yielded quicker results while others far-reaching. The results so far achieved are not very encouraging, as the production of food has not kept pace with the increase in the population. The fact is that the country has to produce much larger quantity of food in the coming years. This raises the question–how to produce more food ?

The following points will answer the question :— i. Expeditious Enactment of land reforms legislation. One will

not hesitate in saying that the intentions of the Government to institute land reforms without implementing the same at an early date will adversely affect the production, partly because of lower investments on the part of the land owners and partly because of lesser interest on the part of the tillers of the soil–the prospective owner. An early implementation of land reform measures will definitely contribute to the greater production in the country.

It is gratifying to note that the sub-committee recently set up by the A. I. C. C. to go into the question of agricultural production has also recommended that land reforms legislation must be completed in all States by the end of March 1959. And the whole business of applying ceilings, taking over the surplus and distributing them among the landless labourers should be done within a period of three years.

2. Setting up of special land reforms organisation

As tenurial conditions in India differ widely from State to State, from region to region and thus in any particular application of land reform measures there is room for variation and adaptation in order to have uniform application. It is proposed to set up a special land reform organisation, "which would review the progress of reforms in the various States from time to time, evaluate the effects of reforms on the general economy, formulate schemes for experimentation in new methods of land management and guide the State government in the implementation of the various measures "of land reforms". [18]

3. Encouragement to Co-operative farming Society

In respect of middle class farmers (those holding land between one to three family holdings) the small farmers (holding land within a family holding) and landless agricultural labourers, co-operative society should be organised but other forms of co-operatives such as co-operative tenant farming societies (collective ownership but individual operation) and joint farming societies (individual ownership but joint farming) should not be ruled out.

4. Greater emphasis to Minor Irrigation Works

Under the new Congress regime investments in irrigational schemes have been remarkably stepped up, but the schemes on which huge amounts have been invested have failed to give desired results. Of course, many new minor irrigational works are constructed all over the country, but no attention has been paid for the maintainance and improvement of the old ones, which have been neglected by Zamindars and Malguzars after their abolition. It is in the fitness of things that greater encouragement and liberal financial assistance should be given for the development of old wells and tanks. When there is enough scope for such wells, water tanks and bunds in the country why talk of multi-purpose irrigation projects ?

5. Greater use of manures and fertilisers

If water and manures are provided in time in the fields, agricultural production is bound to increase. The delegation to China in the year 1956, after studying the schemes and programmes of agriculture of that Country recommended that "an all out effort should be made to develop local manurial resources, such as farm yard manures. night soil, green manures, digging of manure pits as well as utilisation of chemical fertilisers on a much larger scale than at present."

5. Agricultural research and demonstrations

So far, so little indeed has been done by way of organised research demonstra-

(18) Progress in Land Reforms U. N. Department of Economic Affairs. P. 22.

tion and initiation with respect to the basic farming method and equipment for the average peasant. The extent to which agricultural production can be increased in India by the use of better implement and better methods of farming are largely unexplored. The neglect of research in this field is partly due to the fact that scientists and research scholars of high calibre come from upper class families. To them laboratories provide a congenial field of practical work and so in Botany, scientific research, manuring and so forth excellent work has been produced but in the case of implements research work involves practical testing on peasant farms which are unattractive to them. In order to attract graduates, research scholars in general and those who have specialised in particular, the University Syllabus should be revised so as to include practical training in agricultural farm.

6. Greater economy of Cattle Wealth

In a country like India, where majority of the population depends upon vegetarian diet, milk and milk products are very essential to suply proteins, fats, vitamins and mineral salts in the body, but unfortunatly their intake is not adequate. In order to add more quantity of milk products in the diet of the country men, it is suggested that animal husbandry should be encouraged. If a greater quantity of ghee and milk is taken it will definitely go to reduce the intake of cereals thereby improving the dietry standard as well as leaving some surplus food grains to be consumed by others.

8. Priorities In Third Five-Year Plan

In the light of the measures undertaken under Five-Year Plans, it may be questioned whether adequate thought and planning have gone into the selection of the irrigational and other projects and arrangement of the priorities. The percentage increase in the irrigated area and electrical power installed do not, therefore, overcome doubts regarding soundness in the selection and execution of projects and the costs involved. Mistakes are, of course, bound to occur but a poor country such as India can ill-afford many of them. It is, therefore, suggested that careful thought should be given in the selection of projects and arrangement of priorities in the third Five-Year Plan.

9. Development of Human Values

In a country like ours where multi-riligious communities live the principle of simple living and high thinking is followed, corporate life preferred, and spiritual thinking honoured, they can hardly afford to develop the spirit of individualism and materialistic way of thinking of the western countries.

In the end, I believe, if all the suggestions are given a careful thought in the selection of projects and arrangement of priorities in the third Five-Year Plan, the country can produce 100% more food by the end of the plan period.

TAXATION AND OPTIMUM UTILISATION OF LAND RESOURCES

By: M. BALASUBRAMANIAN

AT a time when a country is pressed with the need for money to cover various development schemes undertaken to alleviate the sufferings of the public, it is but natural that the Government resorts first to levy a new tax or taxes or to enhance the existing rates of taxes or both, whichever is permissible and advisable. The effort of the State in this direction will be justified and appreciated if it is economical without affecting the productive capacity and thereby the economic structure of the country at large. Hence, it is clear that in the developing economy of an under-developed country like India, the taxation policy of the State should be to kill two birds at one stroke, viz., to raise finance without damping productive incentive of the public at large. In order to have such a policy, it is necessary that the Government should tackle these vital problems viz., taxation and productiom in such a way that they co-operate with each other and result in maximum profit. This leads us to a study of the correlation between the tax system and the utilisation of the resources of the country.

The problem is not as simple as it appears because it involves a study of land utilisation scheme, crop pattern trends and the economic position of both the State and the public at a time. When we resort to fix up the taxation policy to have optimum utilisation of land resources with a view to increasing production at home and thereby overcoming the one problem that paralyses the country, viz., foreign exchange.

Distribution of Land :—The following table shows the land utilisation statistics of the Indian Union in 1954-55[1]

1. "Second Five-Year Plan" page 322.

Distribution of land in Indian Union

	In Million of acres	Percentage of the total
Forests	133	18.4
Not available for Cultivation	122	17.0
Current fallows	28	4.0
Cultivable area	124	17.0
Net area sown	315	43.6
Cultivable	467	..
Cultivated area	343	..
Total classified area	722	1.0

The total geographical area of the country is 811 million acres but statistics are available for only about 722 million acres. The bulk of the 89 million acres for which land utlisation statistics are not available, consists of mountains, deserts and inaccessible forests. The total cultivated area is 84.3 million acres. Forests occupy about 18% of the total area of India, 17% roughly is classified as land not available for cultivation. In a country where 17% of the total land is marked as not available for cultivation and another 17% as cultivable waste making a total of nearly 246 million acres there is obviously ample scope for laying down a carefully planned land utilisation policy with a view to converting by afforestation some parts of these immense land rescources into fuel and fodder reserves admitted by the Forest Department. It is also clear that a very large area (467-343 = 124 million acres) is cultivable but it is not under cultivation and hence is wasted.

Crop Pattern Trends:—Before drawing up the First Five-Year Plan, the Plann-

ing Commission undertook a study of area under different crops in some of the principal States for a period of 40 years. It showed that over this period (i) the net area sown had increased considerably except in Uttar Pradesh; the area growing more than one crop had increased by 20% and the total cropped area showed some increase which, however, lagged far behind the rapidly increasing population; (2) the irrigated area had increased by 10% mainly through the extension of canals; (3) the area under current fallows remained at the level of 1919-20, till the early forties and thereafter showed some increase, particularly in the cotton-growing tracts because of the sudden decrease in the cotton area which was left partly fallow.

A study in crop pattern trends undertaken by the Planning Commission reveals that (1) the area under food grains showed a small increase in the forties when the area under cotton declined; (2) the acreage under cotton decreased during the period of the two world wars. This trend, however was reversed in the post-war period; (3) the area under oilseeds, mostly groundnuts, had steadily increased by about four million acres; (4) the area under Jute had decreased by about a million acres, since partition, as a result of the efforts to fill the gap between supply and demand of jute and (5) the area under sugarcane had increased by about a million acres. The above study has led to the conclusion that although the gross cropped area had incrased as a result of double cropping, little new area had come under cultivation during the last decades. Secondly, changes in the price structure had affected the pattern of crops even though a large part was cultivated in tiny holdings. Thirdly, the diversion in the area from food to commercial crops or vice versa did not follow a fixed pattern from year to year and was governed by various considerations such as seasonal factors, rotation of crops, changes in prices and the ability of growers to finance the operations.

"A study undertaken by the Ministry of Food and Agriculture to determine yield trends over the last 40 years, indicates that in no State do all the crops show a consistent decline in yield. For commercial crops, the data reveal a clear evidence of generally increasing yields and in respect of sugarcane, an expansion of area as well. In respect of food crops also an expansion in area is perceptible in several cases as also an increase in the proportion of irrigated areas, but yield trends are not uniform; yields show an increase for certain crops in certain States, a decline in certain others and absence of any perceptible change in the rest. Generally an expansion of area under a crop has been seen to be a factor associated with the lowering of yield rates, while an increase in the proportion of irrigated area has the opposite effect. In a few cases yield trends are difficult to explain on these grounds and these cases merit further examination. The study concludes that there is little ground for the belief that there has been a deterioration in soil fertility or in the standard of husbandry in recent years"[2].

After the commencement of the First Five-Year Plan, there was also some noticeable improvement in total cropped area, viz, there were 352 million acres of total cropped area in 1954-55 as against 326 before the commencement of the First Plan. Area under food crops was 272 million acres in 1954-55 (i. e., 78% of the total cropped area) as against 257 million acres (i. e., 77.1% of the total cropped area) before 1951. Area under

2. P. C. Jain: Problems in Indian Economics Page 84.

commercial crops was 60 million acres (17% of the tolal cropped area) as against 49 millon acres (i. e., 15%) in 1951.

Then with regard to the economic position of the people in our country it is a paradox that our country, with well about 80% of her teaming families actively engaged in the soil with about 330 million acres of sown area of which about 82% is under food crops and with one-third of the world's cattle, has not been able to produce enough for the people, to maintain nutritive standard. Though separate agricultural Departments were organised in almost all the States of India over sixty years ago and they have made many successful experiments and demonstrations, the results of their research have not to any appreciable extent, been put into practical application by the cultivators with the result that agricultural production continues to be poor, indeed very poor, as compared with advanced countries. Similarly, a study of the economic position of the State at present will show that the modern State is not a Police State but a "Welfare State" and to cover various Welfare Schemes successfully, it requires crores of rupees and it has to find out ways and means to fill the gap in the budget, between expenditure and receipts.

Thus the foregoing survey of the land utilisation scheme, crop pattern, economic position of both the State and the public will clearly show that the modern State which tries to set up a Socialist pattern of Society, should be justified in levying a new tax or taxes or enhancing old rates of taxes on farm income, provided its action is in conformity with the canons of taxation. However little the income the State may get from the levy of a tax on farm income, it must remember it cannot get it steadily owing to the variations in the yield from the land and frequent fluctuations in the price level.

In order to ensure each perfect equality in economic status, it is not sufficient if the Government has taken only measures to give relief to indebted agriculturists to protect the cultivators from eviction by the landowners, to ensure fair rent to the cultivators, to enable the workers to get a fair wage from their employers, but it should take such a measure as to take a portion of the net income of the big land-holders with a view to cover various welfare measures undertaken. In taking up such a measure to tax the farm income, the Government should see that there would be no tax for persons owning certain acres of land and this exemption limit should vary according to the locality.

Similarly the Government should also see that certain categories like the lands owned by co-operatives, temples etc. and money spent on educational institutions, research activities to promote the cause of agriculture and contributions made to the National Extension Service and community Projects Schemes, would be exempted from this tax. In the matter of assessment on dry land as well as on wet lands, the difficulties of agriculturists depending entirely on feeding of tanks for agricultural operations should be considered by the authorities before levying a tax on farm income and the tax so levied, must be lighter and create sufficient incentive among the agriculturists to produce more.

In case of collection of tax from farm income, the collection agency should be one which has already dealings with the agriculturists and might be in a position to appreciate the difficulties of ordinary ryots. Such an agency should be the Revenue Department and not the Income-tax Department. It should be also remembered that the levy of a tax on

farm income would not amount to double taxation because the levy of tax relates to the income derived from land and that income is subject to taxation just like income from any other source.

Once the Government wants to have a tax on farm income then the land tax should be progressively replaced by tax on farm income because when there is a levy of tax on farm income, the land tax on the level at which it has been collected in all these years, may not be justifiable and hence once the tax is levied on farm income, the tax on land as it exists today, should be modified so as to have a uniform basic tax in the country. Unless a Government knows definitely what amount it would get from the levy of a tax on farm income, it could not implement the levy of a uniform basic tax on farm income immediately. Even if the Government comes to understand by one method or other, the approximate amount that it can get from such a uniform basic tax on farm income, it should not implement the uniform basic tax on land in a hurried fashion because it would definitely land the Government in many difficulties-economic, political, social-and even make it incur a financial loss when the question of "ceiling on holdings" which all the modern State Governments want to take up, is taken up and put in force.

Therefore, there are two alternatives before the Government (1) The Government should fix ceiling on holdings first and then resort to fixing a uniform basic tax on land. (2) The Government should treat the exemption limit of holdings provided in the principle of levy of a uniform basic tax on land, as the "ceiling on holdings." Therefore, it is clear that fixation of a levy of a uniform basic tax on land requires a detailed examination of the position of the holdings in India. Hence, the policy of levy of a uniform basic tax on land should only be a long large plan.

Now what has been explained so far, may be illustrated to convince the reader of the relation between the tax system and the optimum utilisation of land resources, with special reference to the Madras State. On 30th September 58, the Madras Legislative Council passed the Madras Plantations Agricultural Income tax Amendment Bill. The Bill now provides for a levy of income-tax on plantation and non-plantation areas. On the first Rs. 3,600 of total agricultural income there would be no tax and in the same way 12½ standard acres would be exempted from the purview of the Bill. The Bill also provides exemption for certain categories like land owned by co-operatives. Under the Bill 12½ standard acres have been fixed to be the exemption limit because it is thought that the income from it would be Rs.3,600 a year on an average. That means that any person getting an annual income of Rs. 3,600 in the agricultural sector would be a sort of Gazetted Officer.

It is roughly computed that there are about 41 lakhs of holdings[3] in the State of which only about 4,000[3] be taxed under the provisions of the Act, letting alone the compoundable cases. The compoundable cases could be put at about 40,000[3]. That means that a large bulk of the agricultural population would not be affected at all. The land tax and the agricultural income tax levied at the same time, would not create hardship to the minority of the agricultural population who has to pay both because it should be remembered that the land tax, as it exists now, was levied some 30 years ago and there was no resettlement.

Undoubtedly during this period, the prices of food grains and the cost of

3. The Hindu 29th September, 1958.

agricultural operations had gone up, but the cost of agricultural operations had not gone up to such a level as not to leave a margin for the agriculturists, as the increase in prices of foodgrains was far greater than that in the cost of agricultural operations. Therefore the attempt of the Government in passing Bill to get some portion of the net income cannot be questioned. But on the other hand the Government should be congratulated, because it has established economic equality among the agriculturists without killing the incentive for producing more and with the help of the income from such tax proceeds, however little it may be. Together with its other financial resources, it is now in a position to embark on many other schemes to improve agricultural production at home.

VEGETABLE GROWING

By : H. M. DESAI

Introduction

THE word vegetable is derived from Latin Vegetabites meaning enlivening or life giving. India is mostly a Vegetarian country and as such Vegetables are grown and eaten by the Indian people from times immemorial.

In his wild state, man used to feed himself on roots, tubers, leaves and fruits growing naturally in the jungle. As he improved, his diet also improved. Many of these vegetables, were used by man as food, selected, bred and improved upon by growing wild plants under better conditions of land, water, manure etc., which improved them in delicacy, tenderness, taste, and flavour.

Many of the vegetables, like ridge gourd, bringals, pumpkins, cucurbits and several others now in general use, are hairy, spicy and bitter in the wild state. These have been improved by man by selection, crossing, breeding and by the various other ways. Many of the popular vegetables, now in use, are of foreign introduction.

At the time of the East India-Company there were several horticultural gardens in India where various kinds of fruits, vegetables etc., both indigenous and foreign were grown. Where they were acclimatised, the seeds of the successful varities were distributed in the surrounding tracts. Potato, cabbage, cauliflower, beet, turnip, peas and several others were introduced into India through these gardens. The potato, sweet potatoes and ground-nuts, though foreign in origin are now considered by the people of India as if they are indigenous on account of their extensive use and wide-spread cultivation. They are even considered sacred and taken freely on fast days. Chillies, which are an article of every day use in every house-hold in India are introduced from America.

Vegetables on the commercial scale are cultivated near big towns and cities. Belgaum, Poona, Nasik, Baroda and Ahemdabad in the Bombay State are the important vegetable production centres.

Vegetable growers are known as malis or Kachis, who have specialised in the art of vegetable growing, processing and marketing.

Near the cities perishable vegetables are grown which are sent to the market

in head-loads or cart-loads and by rail, if hawlage is within easy distance, well packed in the bamboo baskets. As the distance from the market increases, those that can stand long distance transport i. e., vegetables of harder types, are grown.

Vegetables form a regular item of diet both the times i. e., noon and evening meals of a rich and well to-do-middle-class family in the urban area. Other classes use vegetables when their purse allows. The labour class use onions in place of vegetables.

In the season when vegetables are plentiful they are very cheap. When there is glut in the market, the surplus vegetables are required to be destroyed at times.

In the rural areas, in small towns and big villages, vegetables are consumed only when available in the season. Poor class of farmers and labourers usually use onions and chillies as vegetables.

Of late, vegetable shops in small towns are opened where locally available vegetables are sold most of the time of the year. In short, there is no regular use of vegetables as an article of daily diet for most of the population of the rural areas.

Importance

In the Bombay State in the year 1951-52 of 708 lakh acres of total area, 431 lakh acres were cropped, 413 lakh acres were net sown and 305 lakh acres were under the food crops. Area under vegetables in that year was 188 thousand acres about 4½% of the net sown area and 6% of food crops area.

Of 188 thousand acres in the old Bombay State, the Gujarat occupied 48500 acres, the Decan 72700 acres, the Konkan 14400 acres and the Karnatak 42800 acres. Of the vegetable area potato occupied 24003 acres, sweet potatoes 24000 acres, onion 42000 acres, suran 1200 acres, carrots 6800 acres, raddish 2200 acres, cabbage 2600 acres, brerefals 23000 acres, tomato 5500 acres. bhindi 9500 acres, winter vegetables 25000 acres, summer vegetables 15000 acres and others 40000 acres.

The production of vegetables on all-India basis was estimated to be a million tons (before partion), and about 3 ozs. per unit per day. The minimum requirements are considered to be 10 ozs by the nutritionalist i. e. the production is nearly one third of the requirement. The production of vegetables, therefore, needs to be trebled. i. e. increased by about 300%.

Types of vegetable gardening

Vegetable gardening may be classified into different divisions, according to the nature of crops grown, its disposal and the objective with which they are grown. In the countries where vegetable gardening is specialised the divisions are made as under :—

Truck gardening :—The term applied to the production of one or more special vegetable crops in quantity for distance markets. Such truck crops are grown on large scale by intensive methods.

Under the Indian conditions, the cultivation of crops like potatoes, onions, suran etc., can be included in this class. For example, onions from Nasik find market in ceylon. Potatoes, grown in river beds of Banas river at Desa, are railed to Bombay and other distant places for consumption.

Market gardening :—Growing of vegetables for the local city market nearby. Villages round about Poona have specialised in vegetable growing for the Poona market. Villages round about Bombay and Ahmedabad grow vegetables for these cities. In this market gardening

most of the vegetable crops are for immediate consumption.

Production of Canning crops:—We have not specialised in this form of vegetable gardening. Canners purchase vegetables for their factories in the local market.

Vegetable forcing:—In this type of farming, vegetables are grown out of season under special conditions for realising higher rates for their produce. In India such specialised type of farming does not exist. In our sub-continent we have various environmental conditions, in which most of the vegetables are grown and the produce from which is available in big markets, for most part of the year. In the scarcity period of vegetables, these are drawn from Banglore and even from Madras for the Bombay market. There is also a limit of price upto which vegetables will find market and beyond which they will find no customers. The Bombay city the market is a better market in comparison to the Ahmedabad market. Costly vegetables will find no buyer in Ahmedabad even though the vegetable may be very popular and out of the season.

Home gardening:—The production of vegetables for the house use. This is getting popular in cities with the bungalow owners. This class of people have not yet developed the ethical taste of prizing the home grown vegetables. There is no device to popularise the habit among the people. In the war years occupants of Govt. bungalows were specially encourged to grow vegetables in the bungalow compounds by offering special facilities. As soon as these facilities were withdrawn the vegetable growing automatically stopped.

We have not yet specialised in vegetable growing in its various aspects. Wherever there is a market demand, vegetables are grown as other food crops, by intensive method of cultivation. The finery required in the technique of cultivation, harvesting, marketing etc., to place the choicest produce on the market in an attractive way or specialisation in the production for its various use has not yet been developed. It has not yet begun. There may be reasons for this. The most important of which is the absence of contact between the producers and the consumers. Whatever little is done in this respect is attempted by the retailors who understand the taste of their customers and try to satisfy in a very crude way by sorting his material for sale and by a tall talk for which there is no substance.

Classification

For discussing the technique of cultivation of vegetable crops, it would be desirable to classify the crops in such a way, that it would facilitate such a discussion.

There are different types of vegetables such as climbers, trailers, roots, pods, leafy etc. The best classification would be perhaps that in which, each class may require similar cultural treatment.

The following are some of the ways in which the vegetable crops are usually grouped together:-

1. Longevity of life, i. e. annual or perennial. Those that have a seasonal life period of growth are called annuals. Those that have their life period for more than a year are perennials. Potatoes, cabbage, peas, beans, tomatoes are annuals. Tondali, parwar, kartoli are perennials.

2. Season of growth i. e. Kharif, rabi or hot weather vegetables.

3. Period of growth in a season, i. e. early, late etc.

4. Mode of sowing, i. e. broad-casting, sowing or transplanting.

5. Use of the plant part, i. e., leafy, root-crop, tuber crop or flower or fruit crop.

6. Botanical classification, i. e. Gramineae, cruciferae, leguminasae, solanaceae etc.

7. Plant families i. e. grass family, lily family (onion), mustard family (Cabbage), pea family, gourd family, nightshade family (Potato, tomato), thistle family (Lettuce), fungi (mushreoues), etc.

8. Hardy or Tender, those that will stand ordinary frost or other injuries, and those that will not stand such mishaps like beans, peas, bringals, tomatoes etc.

9. Based on methods of cultivation. These are grouped as under :—

(A) Perennial crops. (B) Leafy vegetables. (C) Salad crops. (D) Cole crops (cabbage family.) (E) Root crops. (F) Bulb and corm crops. (G) Tuber crops. (H) Sweet potatoes (I) Pod crops. (J) Fruit crops. (K) Cucurbit crops (L) Spice crops, etc.

For discussing the cultural practices, this classification being convenient, will be followed.

Food value

Dr. Aykroyad in his health bulletin states that, food is the prime necessity of life. There must be enough of it, so that, every individual is able to get what he needs. Such needs must be defined scientifically with due regard to vigorous growth, health and longevity requirements.

Foods are broadly divided into cereals, pulses, nuts and oil seeds, vegetables, milk and milk products, flesh foods, condiments and spices. They contain in general, proteins, fats, carbohydrates, vitamins and mineral salts. Proteins, fats and carbohydrates are often termed as energy yielding foods, since they are oxidized in the body to provide the energy for life. Vitamins and mineral salts do not supply energy but play important part in the physiological functions of the body. Water is also a necessary dietary element. A well balanced diet should contain the various factors in the correct proportions.

Researches have revealed, that, vegetables are of utmost importance in the food of mankind. The science of diet is of recent origin. Respective Virtues of most of the common vegetables have been interpreted in considerable degree. Outstanding from a health stand point are green coloured vegetables. The greener the colour, the more potent is the Vitamin content, the supply of juice and general nutritive value.

It has been established that for a balanced diet, the vegetables play a very important role in supplying deficiencies of other items of food. They are important in nutralising the acid substances produced in the course of digestion of other foods, they are of value as a roughage which promotes digestion and helps to prevent constipation. They are important sources of mineral elements needed by the body, being especially rich in calcium and iron. They are valuable source of vitamins. Some of the vegetables, such as legumes, are sources of proteins, while others, such as potatoes, sweet potatoes are important source of energy, being rich in carbohydrates.

The main characteristic of vegetables is that they generally contain a very high percentage of water varying from 75 to 95%. They possess very little body building and energy bearing elements i. e. proteins, fats and carbohydrates. Their proteins, however, are better than those of cereals and pulses

and it is considred by some physiologists that they are nearly as good as animal proteins particularly the proteins of leafy vegetables. The carbohydrates of vegetables more or less exist in the form of sugar, and therefore, it is easily absorbed. Poor as they are in proteins and carbohydrates, the value of vegetables lie in their being rich in protective elements of food i.e. minerals and vitamins. Vegetables are, therefore, indispensable supplement to staple food like wheat, rice etc., which are poor in these protective elements.

Due to their having abundance of mineral contents, they generally help to maintain the alkalinity of blood. Almost all of our common foods, including meat, fish, pulses, are acid forming and hence the necessity of taking plenty of vegetables as corrective.

Accordingly, water, mineral substances and vitamins in the various vegetables, in common use, are worthy of consideration.

Water content—The water content has a wide range of variability. The water content of cucumbers is 96% to sweet potatoes 66%. Some of the vegetables, with a high proportion of water, due to their organic acids, fats and volatile oils, are particularly valuable to the physical system.

Minerals — Phosphet is present in general amounts in peas, beans, potatoes, cabbage, beet, turnip, carrots etc.

Potash is abundant in potatoes. beet, cabbage, beans, peas, turnip, carrot etc. Sulphur is prominent in turnips, cabbage, carrots, potatoes and beet.

Soda is supplied in beets, carrots and in a less degree in turnip and cabbage. Lime is notable in cabbage, cauliflower, turnip, beet etc. It is also present in good supply in beans, carrots, lettuce, bhindi, spinach etc. Growing children cannot obtain a sufficient supply of lime from vegetables alone. Iron is found to some degree in all vegetables. Beet tops, spinach, turnip, beans, cabbage, cauliflower, lettuce, onion tops, pumpkins, potatoes, and raddish are good suppliers of iron. Other vegetables such as bringals, bhindi, onion, tomatoes etc., also supply iron in fair amounts.

Vitamins—A is associated with yellow vegetable matter known as kerotene. This is found in large amounts in carrots. Green lettuce, red peppers, yellow squash, yellow sweet potatoes, ripe red tomatoes are also rich in this vitamin.

B is found in beans, peas, pea-nuts, dry beans, sweet potatoes, turnip, carrot, cabbage, tomato, lettuce, pumpkins etc.

C Occurs in fresh vegetables. It is easily destroyed by heat. This Vitamin is carried in cabbage, cauliflower, raddish, musk-mellon, peppers, turnip etc. Tomato carry a fair amount and lettuce, beans, bhindi a small amount.

D is not found in vegetables.

G occurs in beet tops, turnip green, green lettuce, yellow dry beans etc.

H is carried in cabbage, spinach and tomatoes.

It will be seen from the above that most of the vegetables are good sources of water, minerals and vitamins.

In a balanced diet for health, Dr. Aykroid prescribes 10 ozs. of vegetables in diet of which 4 ozs. should be green leafy vegetables, 3 ozs. root vegetables and the rest 3 ozs.

Raw vegetables, when pure and clear, are very valuable parts of a health sustaining diet. Nutritional sciences now, strongly recommend the inclusion of salads in raw form in the daily menu. Cooking inevitably causes foods to loose some of their vitamins and mineral value; only raw vegetables have full

vitamins and mineral contents. They are delicious, quickly and easily prepared and are indispensable to a balanced diet and health.

Unfortunately no balanced diet is possible without taking the effect of cooking methods into consideration. Many people may eat ingredients of a well balanced diet and yet suffer from bad teeth, poor eye sight and hoards of other deficiency symptoms. Why ? Because 50 to 90% of the mineral and vitamin values of food may be destroyed or lost by wrong cooking–methods. Boiling for a long time will dissolve most of vitamin C into cooking water along with minerals. Soda should never be used in cooking as it destroys most of the Vitamins. Some of the vitamins are lost by drying or staleness. Vitamins are also lost in processing done to them for their preserving etc.

For proper–cooking never soak vegetables in water and throw the water away before cooking. Use as little water as possible in cooking. Cook vegetables in as short a time as possible. Utilize all the water, in which vegetables are soaked as soup. Avoid using aluminium-cooking pots. Baked and boiled foods are more helpful than fried ones, being easier to digest.

In the old Hindu literature, especially Bhava–Prakas and Charak, the food value of vegetables is discussed. Among vegetables–leaves, flowers, stalks, corns and masrooms are included. It is stated, that, in general these vegetables are digestible in the descending order.

In the Bhava–Prakas it is definitely stated that, all vegetables are the cause of diseases and the wise men should avoid use of vegetables in their daily diet. The Reasons for this recommendation are not discussed.

In discussing the properties of each of of these groups of vegetables, it is stated that :—

A. The leafy vegetables in general are apetizing, bring clear motions and are correcter of bile and cough in the body.

B. Flower vegetables in general are destroyers of bile and cold, easy to digest and tasty.

C. Tubers and corns in general are tasty, producers of gas and are heavy to digest. They are energy giving.

D. The use of very tender, out of season, stale, insect attacked and dry vegetables should be avoided.

Vegetables grown in insanitory surroundings should not be used.

Masrooms grown on clear ground should be used. Those grown in filthy surroundings should not be used.

In the old literature the vegetables like other foods are viewed from कफ, वायु and पित्त basis.

Traditional beliefs :—

Vegetables of amaranthus leaves are used against drug poisoning and also against constipation.

Vegetables of डोडी भाजी is used as a curative against night blindness.

Cucumber is used for increasing flow of urine. Seeds of bhopala are used against stomach worms. Bitter guard and similar bitter vegetables are considered पित्तहर and are also used as curative against malaria. Raddish are also considered पित्तहर, and are used as curative against liver trouble, goll stones, goll bladder troubles etc.

Ginger is used as a curative against stomach trouble.

Turmeric is considered blood purifier and preventive against सुखा रोग.

Use of suran vegetable is recommended as a curative against piles.

To balance heating and cooling properties the following vegetables are used in combination :—

Potatoes and bringals. Beans and bringals, Potatoes and onions etc.

It is suggested that old literature and traditional beliefs on vegetables should be studied and interpreted from modern nutritional point of view, supported by necessary researches.

LAND USE AND CROPPING PATTERN IN RAJASTHAN

By : Dr. R. M. SINGH

RAJASTHAN is the third largest State in India situated between 23.3^0 and 30.12^0 latitude and 69.30^0 and 78.12^0 longitude. It occupies a geographical area of about 84,407 thousand acres with a total population of about 1,59,70,757. Because of the varied climatic conditions the population rannges from 6 per square mile in Jaisalmer to 290 in Bharatpur district. The average population comes to 121 persons per sq. mile for the State. Climatic and edaphic factors are mainly responsible for this extreme variation in the land for food supply and sustenance. The use of the land for agricultural production and otherwise are mainly dependant upon the food requirement, factory needs and economic development of the State, which in their turn are largely governed by the climatic and edaphic factors of the region.

Climate

The climatic conditions of a place can be judged by the average rainfall, Max. and Min. temperatures and relative humidity, all of which are responsible for crop production. Table 1 gives the information for important stations of the State for the year 1956.

Table 1.

Average rainfall, temperatures and Relative Humidity

Stations	Mean Rainfall (cms.)	Temperatures Max. (^{0}C)	Min. (^{0}C)	Relative Humidity %
Ajmer	53·3	44.5	2.7	64.4
Jaipur	60.9	45.6	3.8	58.9
Jhalawar	91.4	45.1	4.4	67.2
Kotah	76.1	46.2	–1.1	59.2
Sikar	43.2	45.6	0.0	71.0
Udaipur	63.5	43.4	2.2	60.9
Barmer	30.5	47.8	5.5	58.4
Bikaner	27.9	47.8	–0.5	54.5
Ganganagar	25.4	47.2	2.8	65.4
Jodhpur	35.16	41.2	4.4	56.5
Phalodi	22.9	46.7	2.7	58.2

Rajasthan is generally very hot and dry in summer except for the hilly tops of Mount Abu and Kumbhalgarh (for which information is not given here). During winter the North–Western Rajasthan is colder than South–Eastern region. Frost is also not uncommon in the drier parts. During summer hot Westerly or South–Westerly winds and sand storms are very common in Western parts. But

in South and South-Eastern parts of the State, the hills and the forests reduce the velocity of winds. Though the months of May and June are very hot during the day, the nights are cool and pleasant. Thus the climate on the whole is extreme.

There are also great variations in the atmospheric relative humidity. In the South-East Rajasthan the relative humidity reaches to about 97% in rainy season while in April and May it comes down to 20%. In the Western Rajasthan it some times stands as low as 3%.

The difference in rainfall is because of the obstruction created by the Arravallies for South-West monsoon, as a result of which the South-Eastern region receives above 90 cms. of rainfall (Jhalawar). When the monsoon proceeds North-wards along the Arravallies, it gets drier, as a result the precipitation is occasional and very low coming down to about 15 cms. (Jaisalmer). The monsoon remains active generally from the middle of June to middle of September.

Soils

In crop production programme consideration of soil is equally important. In the North-Western region soils are generally sandy with few scattered pockets of silt deposits as in Ganganagar. They are potentially productive. In the Eastern Zone loam soil predominates. In the hilly tracts of South and South-Eastern region soils vary in character from sandy loam to clay loam mixed with stones in some parts. Black Cotton soil is met with in Kotah division and in Banswara district of Udaipur division. Major part of Udaipur division has medium black to yellow clay soils. Black Cotton Soil is retentive of moisture—suitable for winter crops without irrigation. There are many tank beds in the State which dry up during winter and are used for growing wheat and gram. They are clay in nature with high fertility.

Thus, the State of Rajasthan can be conveniently divided in the following Zones determined on the basis of climate and soil.

Zone I: Eastern part of Rajasthan consists of Sawai-Madhopur, Bharatpur, Alwar with medium loam soils and moderate to high rainfall between 65 cms. and over 80 cms. annually. This is a productive zone for various types of crops.

Zone II: South-Eastern region comprises Bhilwara, Bundi, Kotah, Jhalawar, Chittorgarh, Dungarpur and Banswara and part of Udaipur district with heavy loam to clay in texture and from light to deep black in colour, good and productive, receiving rainfall between 65 to above 80 cms. The soils tend to be obstinate in nature capable of producing variety of crops with proper management.

Zone III: South and Central part merging into extreme North-East consists of Jalore, Sirohi, part of Udaipur, Pali, Ajmer, Tonk, Jaipur, Sikar and Jhun Jhunu. The entire zone except Udaipur and Sirohi has light loam soil (coarse texture) with an average rainfall between 35 to 65 cms. The soil is usually hungry and thirsty. It is suitable for Kharif crops and rabi pulses. With irrigation and proper manuring good rabi crops can be produced.

Zone IV: North and North-Western region comprises Bikaner, Jodhpur, Jaisalmer, Barmer, Nagaur, Churu and Ganganagar. This is a vast sea of loose sand dunes and loess but potentially very productive under irrigation as in Ganganagar. Some pockets have silt deposits. Except parts of Bikaner and Ganganagar irrigated by canal, rest are thirsty lands. Rainfall is very low-from below 20 cms. to 35 cms. that too occasional. The

entire area is subject to severe sand drift, occasionally becoming a menace to nearby properties like houses, roads, railway lines etc. which are covered with enormous amount of loose sands due to wind erosion. Gigantic sand dunes are not very uncommon.

Land Utilization :

Table 2 gives the major heads and the extent to which the land was put under use for the period. 1951–52–1956–57*

Table 2

Land Utilisation (Thousand acres)

Agricultural year	Total Geographical area	Forest	Not available for cultivation	Other cultivated land	Fallow land	Net area sown	Total cropped area	Area sown more than once
1951–52	84,709	2,864	22,191	22,247	14,394	23,013	24,105	1,092
1952–53	84,709	2,983	21,149	22,397	12,486	25,694	27,031	1,337
1953–54	84,709	3,320	18,427	21,879	14,222	26,861	28,242	1,381
1954–55	84,406	3,433	16,535	21,974	15,182	27,324	29,505	2,181
1955–56	84,406	3,481	16,143	21,758	14,721	28,303	31,006	2,703

* The figures used here and elsewhere have been obtained from the Basic Agricultural Statistics of Rajasthan 1957 - Directorate of Economics and Statistics, Government of Rajasthan, Jaipur

The figures reveal that although the area under forest has increased substantially–about 600,000 acres from 1951–52, still the total area under forest is only 4% as against 33% of the geographical area recommended by the Board of Forests. The area designated as not–available for cultivation has accordingly decreased by about 6,000,000 acres. This clearly indicates that this area has been taken under plough within these five years. The progress is commendable. In spite of such spectacular advancement in the use of land, the area not available for cultivation is still 20% of the geographical area. This provides enough scope for extending the area under forest. Besides this, 25% of the area remains uncultivated (excluding fallow land) which can be used for afforestation. Thus the area under these three heads is nearly 49%, leaving about 51% for agricultural productions.

Out of the 51% cultivated area, nearly 17% remains fallow on account of many difficulties and slightly over 33% is cropped every year. Remarkable increase in the sown area has been done since 1951-52 amounting to over 5,000,000 acres. Since there has been no reduction in the area under uncultivated and fallow lands, this increase is only because of the additional virgin land taken under plough. This may be the result of increase in population.

Though enormous virgin land has been broken and taken under plough, but it is surprising to note that the area under fallow remains unchanged even after a period of five to six years. The potent reasons that may be attributed to this are, perhaps, the instability of the monsoon and other inadequate facilities especially irrigation available to small farmers.

The area under double crops has increased by 150% over 1951–52 figure. This may be entirely because of increased irrigation facilities.

Cropping pattern

The cropping pattern can be judged by the acreage covered under various groups or crops for consumption, industrial uses or cash purposes. The acreage under crops is also affected by irrigation facilities, market trend and trade facilities and local consumption. Table 3 shows the area under various groups of crops:—

Table 3—Acreage under food and non-food crops

Agricultural Year	Area under crops				(thousand acres)		
	Food crops				Non food crops		
	Cereals	Pulses	Other food crops.	Total	Oil seeds	Others	Total
1952–53	14,611	3,867	77.71	18,555.71	1,340	374	1,794
1953–54	16,271	5,008	89.62	21,368.62	1,601	446	2,047
1954–55	16,076	5,983	122.13	22,181.13	2,157	535	2,692
1955–56	17,283	7,392	109.17	24,784.17	1,985	621	2,606
1956–57	17,387	8,328	135.17	25,849.17	2,278	559	2,837

With the increase in the area under cultivation, acreages under both food and non-food crops have increased accordingly. Among food crops, the acreage under pulses has increased by over 115%, cereals by 18%, other food crops by 74%. The over-all increase in acreage of food crops over 1952-53 is by about 40%. Under non-food crops substantial increase in the area of oilseeds has been recorded amounting to 90% and others by about 50%. On an average the area under non-food crops has increased by about 65%.

The higher percentage of increase in acreage of non-food crops may be on account of oil seeds which could be grown under low water availability and being a cash crop giving higher economic return. The lower percentage of increase in area under cereals is because of lack of adequate facilities and substantial increase in the area under sugarcane and cotton as a cash crop. The increase in the acreage under pulses is attributed to its low water requirement and drought resistance and due to inadequate facilities for irrigation for rabi cereals.

Since more than 50% area of Rajasthan receives less than 40 cms of rain annually which also is confined to about 60 or 70 days of the July-September period, only kharif crops requiring less water are commonly grown. Among the kharif crops Bajra ranks high followed by pulses viz. Moth, Urd and Mung. Gram also equals to kharif pulses, since this crop does not require irrigation if enough moisture is available at sowing time. It needs a light rain during winter season to protect the crop against frost.

Wheat stands the 4th position among the important crops of Rajasthan. This is grown in nearly all the irrigated tracts. Acreage under this crop has increased by about more than 80% over 1952-53 figure while increase in other cereals is correspondingly low. This indicates that the pattern of cropping is changing from inferior to fine grains. Among the pulses enormous increase in the acreage of gram and kharif pulses have also been recorded to the extent of 150% and about 50% respectively over 1952-53 figures.

Irrigation has also been responsible for changing the pattern of cropping to a large extent. The main sources of irrigation in Rajasthan are Tanks, Canals and Wells. The area irrigated through these sources are in the proportion of 1 : 1 : 5 : 5. The gross irrigated area has increased by 1,144,000 acres in five years' time from 1951-52, and the corresponding increase in the area irrigated more than once is by 197,000 acres amounting to

50% over 1951–52 figure. This increase in irrigated area may be due to new irrigation projects completed by the end of the first Five–Year Plan. The total irrigated area still is to the extent of 11.83% of the cultivated area.

Irrigation is one of the limiting factors in the change of cropping pattern. Many crops like cotton, sugarcane, Potato, Wheat, Paddy and Tobacco cannot be grown without adequate irrigation facilities. A change from uneconomic crops to more paying crops with increased facilities will certainly better the economic condition of the people and their standard of living. Grow more food Campaign has also been responsible in decreasing the area of cash crop diverting it to food production.

Table 4 shows the irrigated area under groups of crops from all the irrigation sources :—

Table 4 : Irrigated areas under different crops

Agricultural Year.	Area in '000 acres				
	Food Crops	Cotton	Sugarcane	Others	Total
1951–52	2,255	243	82	333	2,893
1952–53	3,212	204	44	350	3,810
1953–54	2,795	242	43	330	3,410
1954–55	2,826	265	51	583	3,725
1955–56	2,984	301	60	592	3,937

The increased irrigation facilities have increased the area under food crops and cotton and to some extent in sugarcane. The trend indicates that further increase in irrigation facilities in dry parts of Rajasthan by canals–Bhakra–Nangal and Rajasthan Canal would certainly decrease the area under Bajra and other inferior grains and increase the acreage under cotton, sugarcane, wheat, potato and tobacco.

The Second Five–Year Plan envisages a target of increased acreage under irrigation to an extent of 17.08 lakh acres nearly 50% of the present acreage under irrigation (33.35 lakh acres in 1955–56). When the projects under the plan are completed by 1960–61 an additional agricultural production to an extent of 8.12 lakh tons of food grains 0.62 lakh tons of Gur, 0.42 lakh tons of oil seeds and 1.16 lakh bales of cotton will be achieved. The increased irrigation facilities, together with increased use of fertilizers, better seeds, improved implements and cultural practices will not only increase the area under fine grains and cash crops but will increase the production per acre increasing the efficiency of all resources. This will ultimately result into reduced acreage under uneconomic crops and thereby increase in cash crops which will better the economic condition of the people and raise their standard of living.

WHY AND HOW TO CONTROL THE RAT?

By: D. V. S. CHAUHAN

RATS, nature's worst despoilers belong to the destructive and loathsome family "Muridae". Broadly they are divided according to their habitat into two main classes :—

1. Those found in houses, human dwellings, godowns, barns and other urban areas are the common House Rat (Mus dubius), the Black Rat (Rattus rattus), the Brown Rat (Rattus–norvegious).

2. Those found in fields are Gerbillus sp, and Nesokia Sp.

Rats after attaining sexual maturity in 3–4 months bring out a litter of young numbering 8–10 once every month. It has been found that a single pair of rats and their progeny produce about 600–800 individuals in a year. They cause innumerable harm in India :—

1. They harbour in plenty the fleas which carry plague and thus they affect the human health considerably.

2. They make extensive burrows inside human dwellings, nibble wood work, destroy upholstery of furniture, cotton and silk clothing material, blankets and stores of all kind-leather, hides, textiles, paper and many other commodities. Even wire mesh, soft metal partitions, rubber coverings of electric wires are not immune from a sheer sense of devilish and merciless destruction by rats. The economic loss caused by them all over the country is incalculable.

3. They destroy grain whether in storage, in godowns or on standing crops in fields considerably. They foul ten fold of what they eat up and carry away foodgrains to store in their burrows for future use. As for example, on digging a rat–burrow near Nainital in 1953, 6½ seer maize was found in it.

4. They compet for food with human beings. According to Farms News Release No. F. I. U.–9/58 (issued by the Ministry of Food and Agriculture Govt. of India. New Delhi)–for every man in India there are 6 rats competing with him for food (1 to 4 in U. S. A. according to Technical Bulletin No. 3 of S. B. Panick & Co. New York).

The rat population in India is currently 2400 million (according to the above stated reference). Taking just one ounce of grain as the food consumed by a single rat in a day the total loss comes to about 26 million tons of food grain in a year.

With the above, it will not be an exaggeration if rat is declared as *Enemy Number one of India* and let us proclaim a war aganst it, as Bilharziasis—a living worm in human beings has been declared as Egypt's Enemy Number one according to Dr. Abhahan Marce ("Hindustan times" Weekly 1st February 1959.)

We can feed many more mouths even with our present food resources if rats are controlled effectively. Following methods can be used for rat extermination, according to the degree of infestation.

A. Mechanical Methods

Rats are killed mechanically either by hunting or by trapping. By digging burrows containing rats and using cats and dogs; we can kill many rats by hunting,

Suitable traps containing attractive food when placed near the rat burrow will also kill them. But these have limited application and are useful only in small rat infested fields, houses, godowns and shops.

B. Chemical Methods

These include fumigation of rat burrows or use of baits of different chemicals for controlling rats. Baits of different chemicals are laid down in the infested area according to the following technique. A survey should be done to ascertain the number of burrows and their distribution in the rat infested area. Then all the burrows of the area are closed with mud or wet soil and re-examined next day to find out the exact number of live burrows which are opened by rats. Bait is prepared according to them. Do not place poison bait all of a sudden because rats are extremely sensitive to anything that is new or to any marked change in their accustomed environment. So to train and develop the taste in rats for baits, prebaiting should be done for first 2 days by placing plain baits (any material liked by rats) without poisoning them. Prebaiting should be done at fixed places frequented by rats. These are called "Bait Points" or "Bait Stations". Actual poison baits should be placed according to the recommended dose, on the third evening. Survey again next morning the treated area and collect the uneaten bait and dead rats. This operation should be repeated again on the same evening. If needed, second round of baiting may be done after an interval of a fortnight and may be continued for some more days till complete rat control is achieved. As rats and mice have highly developed sense of taste, smell, and very strong instinct to survive as individuals or as members of a colony, so continued use of one bait may make them shy of that bait. It is, therefore, better to use different poison baits alternately against this pest.

N. B. : For effective control of the pest it is recommended that the above mentioned Chemicals may be used in the following way :-

1. In houses, godowns and shops etc. Tomarin, Muritan, Ratafin and Barium Carbonate.

2. In fields, Zinc phosphide, castrix grain, Muritan, Warfrin, strychine sulphate or Hydro-chloride and fumigation with cymag or cynogas "A" dust may be used.

I. Fumigation :—For fumigation Cynogas 'A' dust (Obtainable from Shaw Wallace & Co. Calcutta or from their authorised representatives) and cymag (can be had from representatives of I. C.I. (India) Ltd. or direct from them are used. Both of them, on contact with atmospheric moisture liberate hydrocynide gas which is deadly to rats. They are used in the following way :—

First survey the rat infested area carefully and then close the burrow openings with wet soil. Re-examine them next day to find out the exact number of burrows which are occupied by rats. Then put the nozzel of the cynogas foot pump about a foot into the burrow. The pump must be inspected before use to ensure that it is working alright and giving a normal pressure. The glass bottle provided at the bottom of the pump should be half filled with the powder with wooden Spoon carefully and screw it on the pump. Then cut off lever of the pump is turned to air and about 6 to 8 strokes are given so that powder or dust may be blown into the fartherst part of the burrow to obtain maximum penetration. Half a pound of cynogas 'A' dust or cymag powder is sufficient to treat about one hundred burrows. Rats emerged during the fumigation from the burrows generaly die in a moment or two, otherwise they should be killed mechanically. After treating the burrow

close it with mud. If burrow fumigation is done in domestic houses then make them air tight and vacate all the cooked food, salt, sugar and their products, oils and other fatty substances from them before fumigation and keep them covered and tightly closed.

Extreme precaution is needed to avoid hazards of cynide poisoning, so fumigation is always done according to the instructions and supervision of experts and trained men.

(*ii*) *Poisons*:—Various poisons are available these days in India, which are used for eradicating rats. Some of the Chemicals and their preparations found very effective for killing rats are given below:—

(1) *Barium carbonate*:—It is a white amorphous weak poison which can be used satisfactorily in house and fields. Take 2½ seer bajra flour and moisten it in the morning and keep it wet till evening. Then mix well half seer Barium carbonate in it and about 200 pills of equal size are made from it. Two pills are kept near the mouth of each burrow in the evening.

(2) *Zinc phosphide*:-It is a greyish black powder with a disagreeable smell. Various kinds of baits are prepared from it according to the availability of baiting material.

According to the Entomologist Punjab Govt. :- Mix one seer of zinc phosphide with 20 seers of wheat flour and add 2½ seer gur syrup to it. Knead it well and prepare small pills of the size of pea grains then insert atleast one pill in each burrow and close it instantly. Treat the re-opened burrow again next day.

According to the Agricultural Entomologist Bombay Govt. :-Moisten about half seer of wheat flour early in the morning and keep it wet until evening. ½ Chatak of zinc phosphide is then mixed well with the flour paste and make about 200 pills of equal size and keep atleast two pills near the mouth of each burrow in the evening.

According to the Plant Protection Deptt. of I. C. I. (India) Ltd. Kanpur :—Pour water on crushed grains of wheat or any other cereal (preferably the local staple cereal) until they become well soaked. The zinc phosphide is then slowly added at the rate of ½ Chatak of it for 5 seer of grain. Then it is mixed with the grain by a wooden spoon, until the bait assumed a greyish colour. To make the bait more attractive little vegetable oil may be mixed to it. The prepared bait should be used immediately after preparation by scattering it lightly between the rows of growing crops.

For fields heavily infested with rats, the bait recommended is cooked rice made attractive for the rats by mixing with cut pieces of onion, dried fish or prawn dust fried in oil and zinc phosphide is mixed to it at 5% by weight with the bait.

(3) *Muritan powder* :—(Diazamino-compound) :—It is a powder which has neither a taste nor a smell of its own so it can be mixed with any type of bait at the rate of one part of muritan powder to twenty parts bait. After working the mixture into a paste by mixing necessary quantity of water. Then spread the paste on little pieces of card or wood and put down them in the evening in the places frequented by rats.

(4) *Castrix Poison grains* (*Pyrimidine derivative*) :—This is a highly effective rodenticide, harmless to domestic fowls. These grains are not affected by rain and can therefore be used during any season of the year. Put a tea spoonful of castrix poison grains (About ¼ Chatak) in drain pipes or under hollow bricks in such a way that dome-

stic animals cannot reach the grains. The pipes and bricks should then be covered with straw, hayorpotato tops. These may also be put inside the burrows.

Both (c) and (d) poisons are available from M/S Chika India Limited (Industrial Assurance Building Bombay 1 or their authorised representatives).

(5) *Warfrin* :-Ready made baits containing 0.5% warfrain are available in the market. It is further diluted as one part in nineteen parts of any meal or crushed grain before use. For, this coarse ground whole yellow maize is the best acceptable bait, though Rice, wheat and other cereals can also be used as baits. Attractants and flavourings like ground nut oil or some other edible oil and sugar can be added in minute quantities to attract the rats. Bread crumbs, dog food or poultry mash can also be used as baits. The mixed bait is placed about 2 to 8 Chatak at a time in areas frequented by rats. Replenish the baits regularly everyday as long as there are still signs of feeding.

Ratafin:—It is a new rodenticide available in the market. It is better than above mentioned rodenticides because rats die after eating it over a period from 5–14 days, without alarming the rest of the rat population. It was also found that rats are not shy to the ratafin baits and try to eat more bait even crawling over those killed by ratafin. Ratafin baits are prepared like warfrin baits. According to the rat infestation 2 ounce to one pound of mixed bait of ratafin may be used at one place. In India, the trials of this rodenticide are still to be carried out for its uses.

(7) *Tomarin*:—It is also a new rodenticide. It is more useful than others, which are used after mixing them with some baiting material while it is used without mixing, directly by sprinkling the surface of infested area. Rat community remain unperturbed and unalarmed even when one of them die due to Tomarin poisoning. Rats poisoned by it die into the open rather than recede into their nesting places as usually they do with other poisons. They may be picked up and disposed of before puterifying corpses give out a stench. Tomarin is used by sprinkling a thick layer of it at strategic points, taking care that food stuffs are not contaminated and furnitures or stores are replaced carefully after application of Tomarin. Tomarin layer should be renewed if the original application is disturbed by the rats. As it is not detenoated, it may be left as long as possible in sitn. Keep away cats, dogs and other domestic pets from treated rooms and fields.

(8) *Strychnine Poison baits* :—Both strychnine hydrochloride and Sulphat are used for making baits. As both aree highly toxic compounds to human beings, hence, these should be used only when other poisons have failed, otherwise not.

(a) *Strychnine hydrochloride bait* :— 20 seers of gram 'dal' is soaked in water over night, or it is cooked for about fifteen minutes and then strained. Then prepare a thick syrup of about 2½ seer gur in water and mix well half chatak of Strychnine hydrochloride in it. Put this soaked dal in this poisoned syrup and boil the mixture to ensure a uniform mixing of the poison and dal. Remove the mixture from the fire and allow it to cool. Put about half Chatak of this poison bait into each burrow and close it with mud.

(b) *Strychnine Sulphate* :—Dissolve half chatak of the poison in sufficient water. Then two seer of gur or jaggery is heated in about one seer of water and a thick syrup is prepared.

Both these solutions are thoroughly mixed and then fifteen seers of gram dal previously soaked or cooked as described above is added to the mixture. Then proceed as above.

If above mentioned chemicals are not available then Kuchla Seed (Strychnous nux vomica) may be used in the following way–Boil 2 chatak of the seeds in about 2 seer of water, and then crushed when they are softened enough. Boil it till about two chatak of the extract is remained. Proceed as in the case of Strychnine hydrochloride.

Precautions

1. Place poison bait at dusk or in the evening and collect positively the remaining bait material in the morning and store it safely for further use or destroy it immediately by burning.

2. All chemicals used in rat control are extremely poisonous hence they must be used with great care according to the instructions of the supplier and must be used under the supervision of trained men.

3. As far as possible do not touch baits plain or poisoned during their preparation. Rats are highly sensitive to human smell so wooden spoon or laddle may be used for this.

4. Do not allow irresponsible persons and children to handle them in any case. Keep the poison under lock and key away from food stuffs and animal feed.

5. Place the prebait and poisoned bait in boxes, hollow pipes or bamboo pieces to which rats alone can have access, and where there is no possibility of danger to human beings, animals, poultry and pets.

6. In case of accidental infestation rush the patient immediately to the nearest hospital.

This rat menace problem can be tackled if it is controlled on a mass scale and on co-operative basis. Government should help in the rat extermination campaign the needy persons with necessary chemicals required for rat control, so that vital stocks of food stuffs may be saved from the rats and health and hygiene in plague ridden villages of India may be maintained satisfactorily. Readers will be surprised to know that a mass scale action against rats in 1954, in 6 districts of former Hyderabad State gave an additional 300 tons of food grains and in terms of money, the saving amounted to Rs. 90,000/—. One can imagine what will be the amount of saving if rats are controlled effectively throughout India. No doubt, anti-rat campaign is going on in Union Territory of Delhi, where about 7,00,000 lakh rat borrows have been treated with baits upto February 1959 (From Hindustan Times New Delhi dated 18th February 59). To have an effective control of this pest, such campaigns should be organised throughout India, on a mass scale with the help of Agriculture workers, Extension staff, leaders of "Teams of helpers" and school children only then we will be able to control the rat, Enemy Number One of India.